

Conservation Effects Assessment Project

- The purpose of CEAP is to quantify the environmental benefits of conservation practices implemented under the 2002 Farm Bill.
- Tracking these benefits over time will allow policy-makers and program managers to implement and modify existing programs to more effectively and efficiently meet the goals of Congress.



**Cooperative State Research,
Education, and Extension Service**
Research, Education, and Economics



Measuring the Environmental Benefits of Conservation

The Conservation Effects Assessment Project (CEAP)

Scope of CEAP

- Water Quality
- Soil Quality
- Water Conservation
- Air Quality
- Wildlife Habitat



Land Use Categories

- Cropland, including CRP
- Grazing lands
- Agro-forestry
- Wetlands

Conservation Programs

- **EQIP** **Environmental Quality Incentives Program**
- **CRP** **Conservation Reserve Program**
- **WRP** **Wetlands Reserve Program**
- **WHIP** **Wildlife Habitat Incentives Program**
- **CTA** **Conservation Technical Assistance Program**

Implementing CEAP

- Initial focus is on cropland, including CRP
 - Water Quality
 - Soil Quality
 - Water Conservation
- As the project progresses, the scope will be expanded to include remaining resource concerns and land uses

CEAP Components

- National Assessment
- Watershed Assessment

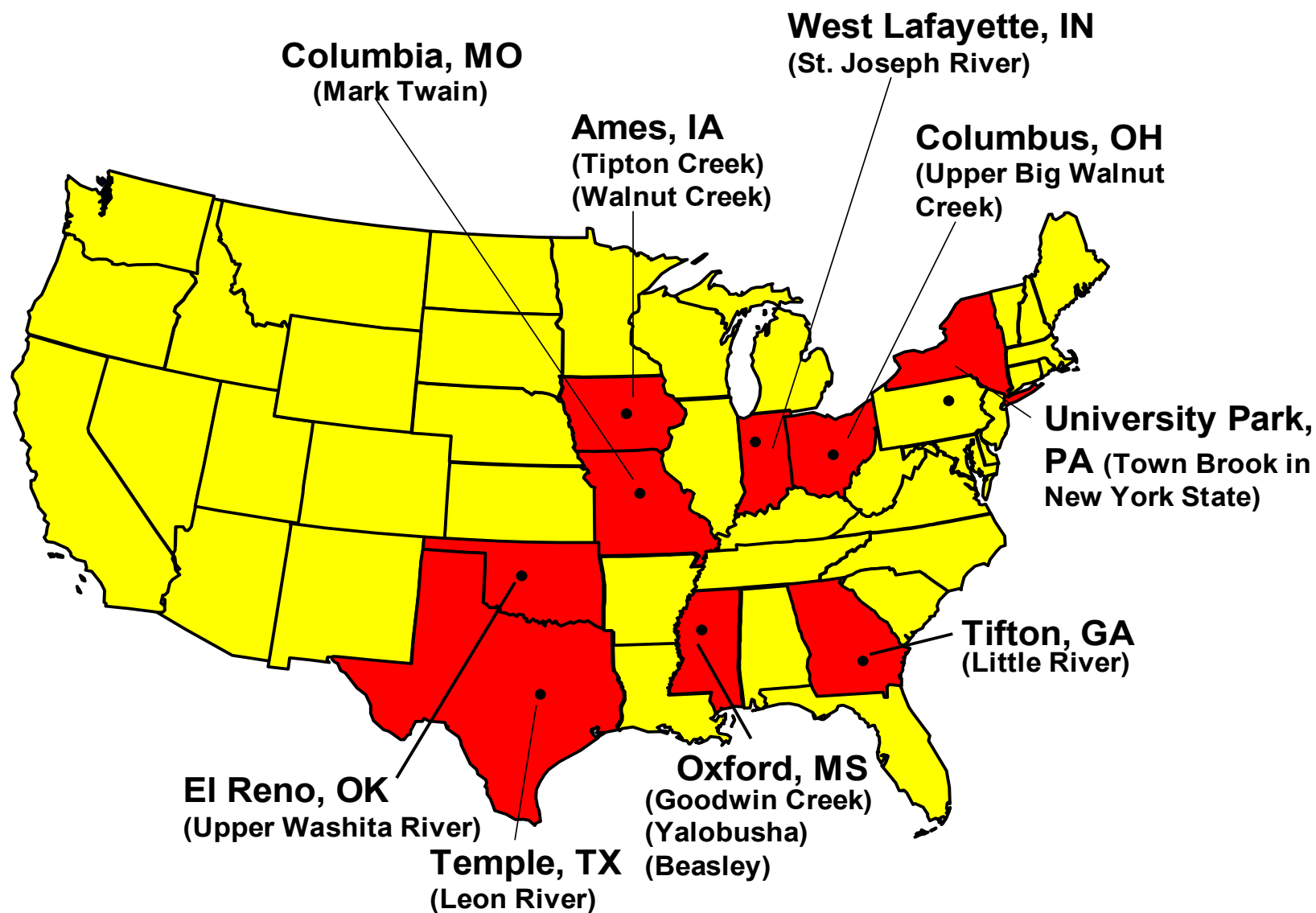
Watershed Assessment

- **Provide watershed scale benefits information**
- **Develop and document indicators of benefits**
- **Identify optimum implementation strategy to meet water quality goals**
- **Provide estimates of uncertainties**
- **Complements the National Assessment**

Watershed Assessment Categories

- **Three Watershed Categories:**
 - **Agricultural Research Service (ARS) Benchmark Watersheds**
 - **Competitive Grants Watersheds (CSREES)**
 - **Special Emphasis Watersheds**

The ARS Benchmark Watershed Assessment Studies 2003-2004



Special Emphasis Watersheds

Special Emphasis Watersheds

- Ongoing research and demonstrations
- AFO/CAFO/manure and nutrient issues
- Irrigated cropland and water conservation
- Drainage management
- Water quality impairment
- 7 have been selected for FY2004 and FY2005 funding

Watershed Assessment: CSREES

CSREES Competitive Grants Watersheds

- The CSREES grants will involve Universities and others in CEAP.
- 3-year projects
- 4-5 will be selected in each of 3 years
- RFA for FY2004 closes July 6, 2004.

National Assessment

The purpose of the national assessment is to provide an accounting of the environmental benefits obtained from USDA conservation program expenditures.

National Assessment

- **Cropland and CRP**
 - **Material losses from farm fields**
 - **Water use conservation**
 - **Soil quality**
 - **In-stream concentrations (water quality)**
 - **Pesticides**
 - **Wildlife**
 - **Air quality**

Cropland and CRP

- **Sampling and modeling approach**
- **Field-level estimates are based on a subset of NRI points. The NRI provides:**
 - **Diversity of Landuse & Topography including:**
 - **Geographic Location**
 - **Specific Soils Information**
 - **Climate Data**
 - **Historical Cropping Patterns**
 - **Irrigation, etc.**
 - **Statistical Framework for National Estimates**

Cropland and CRP

- Physical process models (EPIC-APEX) will be used to estimate field-level results at NRI points
- Information on farming practices and conservation practices will be collected at these sample points for use in running EPIC-APEX

Cropland and CRP

- **The resulting simulation model ...**
 - captures the diversity of land use, soils, climate, and topography from the NRI,
 - estimates the loss of materials from farm fields at the field scale where the science is best developed,
 - and provides a statistical basis for aggregating results to the national and regional levels.

The CEAP Sample

- **About 40,000 NRI Cropland and CRP Points will be selected for the analytical framework**
 - Roughly a 10% sample
 - 10,000 points sampled in 2003
 - 10,000 points sampled in 2004
 - 10,000 points sampled in 2005
 - 10,000 points sampled in 2006
- **Final sample will pool survey responses from all years**

National Assessment



2003 CEAP Sample

USDA NRC's NOGI R/SB
June 2003



CEAP Survey

- For NRI points enrolled in CRP general signups, practice information is obtained by linking to the FSA database. NASS and FSA establish this linkage using FSA field office records.
- Owners/operators of CRP points are not interviewed.
- About 20% of the sample will be CRP points.

CEAP Survey

- **For points with crops grown, the survey provides:**
 - **Three years of crop and cropping practice information**
 - Crops grown, seeding rates, etc.
 - Nutrient applications, including manure
 - Pesticide applications and management practices
 - Field operations, including tillage
 - Irrigation practices
 - **Conservation practices**
 - Annual
 - Structural
 - **Program participation**

National Assessment—Water Quality

Offsite water quality benefits will also be assessed using a combination of models and databases called SWAT/HUMUS

- **EPIC-APEX results from the NRI modeling will be used to represent cropland**
- **This will allow estimation of the reduction in in-stream concentrations of nutrients and sediment attributable to implementation of conservation practices at the outlet of each 8-digit watershed in the country.**

National Assessment--Other Aspects

- Literature Review of the effects of conservation practices
- Model Evaluation
- Expert Policy Review Panel

National Assessment Reporting

- **First Annual Report – Summer, 2005**
- **Second Annual Report—Winter, 2006**
- **Third Annual Report—Winter, 2007**
- **Final Annual Report—Winter, 2008**

Questions? Comments?

- **Robert L. Kellogg**
USDA-NRCS, Washington, DC
(202) 720-0127
robert.kellogg@usda.gov
- **Website at:**
www.nrcs.usda.gov/technical/nri/ceap